

FACTSHEET

GASTRIC ULCERS

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EQUINE GASTRIC ULCER SYNDROME (EGUS)

Gastric ulcers occur commonly yet present a number of treatment challenges requiring pharmaceutical intervention and intensive lifestyle modifications

WHAT ARE ULCERS?

Veterinarians have long recognized gastric (stomach) ulcers in horses. These ulcers—painful erosions of the tissue lining the gastrointestinal tract—can occur anywhere from the lower esophagus, throughout the stomach, and into the first part of the small intestine called the duodenum. In 1999 veterinarians adopted the term “equine gastric ulcer syndrome” (EGUS). This terminology recognized two distinct forms of ulcers: those in the squamous or nonglandular part of the stomach (equine squamous gastric disease or ESGD) and those occurring in the glandular region (equine glandular gastric disease or EGGD).

The equine stomach is essentially divided into two regions. The first is the “top” part where the esophagus empties into the stomach, while the second is located at the “bottom” and drains into the small intestine. The upper region is the squamous, nonglandular area, which is separated from the larger glandular section by a ridge called the margo plicatus. Ulcers occurring in the squamous region are usually the ones horse owners think of first, but both ESGD and EGGD occur relatively commonly and can cause many issues for affected animals.¹

WHO'S AT RISK?

Any horse can develop EGUS, and its prevalence varies depending on a horse's breed and use. Considering the following data:

- ◆ EGUS is moderately prevalent in Warmbloods and highly prevalent in Standardbreds and Thoroughbreds;
- ◆ Ponies develop EGUS infrequently;
- ◆ 90% of Thoroughbreds actively participating in racing and training and 40% of performance Quarter Horses have ESGD;
- ◆ 8-63% of Thoroughbreds have EGGD, depending on geographical location (e.g., United Kingdom vs. Australia);
- ◆ 60.8% and 70.6% of domesticated horses presenting to an abattoir (slaughterhouse) had ESGD and EGGD, respectively, while only 22.2% and 29.6% of feral horses at the same abattoir had ulcers;
- ◆ EGUS ranges anywhere from 25-50% in neonatal foals and 32-94% in weanlings.¹⁻³

Other EGUS risk factors include gender (stallions are more likely than mares or geldings to have ulcers), concurrent diseases (e.g., inflammatory bowel disease), diet, environment, and stress.

Stresses that can negatively affect the horse's stomach include withholding feed or water intermittently (e.g., prior to or during competition), exercise intensity and duration, transport, stall confinement, being introduced to a new herd, and offering high-concentrate/low-roughage diets. Medications such as non-steroidal anti-inflammatory



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drugs (e.g., phenylbutazone, flunixin meglumine) also contribute to ulcer formation.¹

RECOGNIZING EGUS

Despite its prevalence, the signs associated with EGUS are typically vague and nonspecific. Anything from inappetence/anorexia, poor body condition/weight loss, and diarrhea to behavior changes and poor performance can raise an owner or a trainer's suspicion of EGUS. Bruxism (clenching and grinding teeth), salivation, a poor hair coat, and stereotypic behaviors such as stall-walking, weaving, and pawing might also indicate a problem, whereas some horses and foals show no outward signs of EGUS at all. Overall, colic (particularly recurrent colic) is the most common sign of EGUS.^{1,4}

DIAGNOSING THE DISEASE

Veterinarians can perform gastroscopy (an endoscopic examination widely referred to as “scoping”) to definitively diagnose EGUS.¹ Scoping allows practitioners to directly visualize the inflammation/erosion of the stomach lining, ideally in both the squamous and glandular regions. To maximize visualization of the stomach, fast adult horses for 12 to 16 hours beforehand, and remove water two to four hours prior to scoping. Foals only require a one- to two-hour fast. If horses are already receiving omeprazole to treat suspected EGUS, give the medication as usual. In addition to visualizing the ulcers, the veterinarian should note their number, size, and appearance to calculate an ulcer score.⁴ This helps the vet determine whether a horse is improving on follow-up examinations. Affected animals need to be scoped every four to six weeks until their ulcers have resolved.⁵

Other ulcer tests, such as the sucrose permeability test and the fecal blood test, have not proven themselves reliable to date.¹

MANAGING EGUS

Only 4-6% of ulcers in the stomach's nonglandular region heal spontaneously. Successful EGUS treatment should:

- ◆ Relieve pain;
- ◆ Eliminate the clinical signs of disease;
- ◆ Promote healing of ulcers; and
- ◆ Prevent ulcer recurrence and development of secondary complications (e.g., gastric perforation).

GASTRIC ULCERS

Suppressing gastric acid (hydrochloric acid) production to increase stomach content pH and create an environment amenable to healing are the cornerstones of managing EGUS regardless of ulcer location. Many owners first elect to treat pharmacologically to achieve the above-outlined treatment goals. Currently, omeprazole is the only FDA-approved medication for treating and preventing gastric ulcers (ESGD or EGGD).^{1,3} Omeprazole increases the pH of the stomach contents (i.e., makes them less acidic) by blocking proton pumps that produce gastric acid.

Additional medications can potentially help treat EGUS. **Antacids** (e.g., aluminum or magnesium hydroxide or calcium carbonate, sometimes sold as supplements) increase pH for at least two hours and are inexpensive; however, caretakers must administer them on an empty stomach (which is counterintuitive in horses with ulcers) at least four times a day. The **histamine receptor antagonists** ranitidine and cimetidine reduce stomach acid production by blocking histamine-2 receptors. **Sucralfate** binds to ulcerated stomach tissue and facilitates healing.⁶ Similarly, bismuth subsalicylate coats ulcers and appears to help

healing by increasing gastric pH. Like antacids, sucralfate and bismuth subsalicylate must be administered on an empty stomach so the products aren't "washed away."¹ Finally, veterinarians have reported some success when using **misoprostol** for EGGD.⁶ Misoprostol is a prostaglandin analogue that inhibits gastric acid secretion, protects the stomach wall from injury, increases blood flow to the gastrointestinal tract lining, and has anti-inflammatory properties.⁶ Misoprostol might be more effective for EGGD than omeprazole and sucralfate combined.⁶

While it might be easy to simply treat horses pharmacologically, medications alone will likely be unsuccessful without instituting key management changes.¹ To fully treat, and minimize ulcer recurrence, vets recommend:

- ◆ Reducing exercise intensity;
- ◆ Increasing pasture turnout;
- ◆ Offering a high-forage diet where intake is

≥1.5% (dry matter) body weight and only offering concentrates sparingly; and

- ◆ Feeding small, frequent meals and ad libitum forage and water.^{1,4}

ADDITIONAL OR ALTERNATIVE TREATMENT STRATEGIES

Dietary supplements containing herbs, prebiotics, probiotics, and other nonmedicinal ingredients are commercially available to help manage affected horses. Examples include sea buckthorn, pectin and lecithin, omega-3 fatty acids, aloe vera, and more. Products containing alfalfa are also thought to help due to their buffering action.²

TAKE-HOME MESSAGE

Equine gastric ulcers are common and can cause a variety of health and behavioral issues. The syndrome requires medical treatment and long-term management.

Recommended Resources

1. Zavoshti FR, Andrews FM. Therapeutics for equine gastric ulcer syndrome. *Vet Clin North Am Equine Pract.* 2017;33(1):141-62.
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